0070011

2012 Annual Drinking Water Quality Report
Town of Elkton, Cecil County, Maryland

Mayor Joseph L. Fisona and the Commissioners of the Town of Elkton are pleased to present the *2012 Annual Drinking Water Quality Report* to our citizens and water service customers in the Elkton community. This report is intended to inform you about the quality of our drinking water, and to assure you that we are providing a safe and reliable supply of drinking water to our residents, our business community, and our other customers.

The Town of Elkton's drinking water is derived from **three (3) sources**: 1) surface water from the Big Elk Creek; 2) groundwater from deep within the Potomac aquifer; and 3) an Interconnection with Artesian Water Maryland, Inc. Water from the Big Elk Creek, a perennial stream supplying the Elkton Water Treatment Plant (*PWSID 0070011*) is chemically treated, filtered, and disinfected, then pumped into the Town's distribution system, which includes both pipelines to all developed areas within the town and to storage facilities that reserve water for times of peak demand and for emergency fire-fighting needs. Groundwater is obtained from two wells (*PWSID 0070011*), *only requiring minimal treatment*, then pumped into the distribution system. The Interconnection with Artesian Water Maryland provides supplemental water from Artesian Water Company (*PWSID DE0000552*), about 16% of our total daily distribution, which is derived from fifty wells throughout New Castle County, along with water Artesian purchases from the Chester Water Authority and the City of Wilmington. A copy of the *Artesian Water Quality Report* **is included with this report**, but can also be obtained by calling Artesian at (302) 453-6930 or viewing the report on Artesian's website at www.artesianwater.com.

The Town's water treatment plant, its wells, and related facilities are operated and maintained under a contract with *Severn Trent Environmental Services*. Severn Trent responsibly oversees the treatment and distribution of drinking water throughout the town, as well as monitoring water quality and sampling from the distribution system to determine and ensure compliance with all Federal and State drinking water quality standards. Elkton's drinking water meets all Federal and State treatment and quality standards. The information presented in this report,an d the enclosed report from Artesian Water Maryland, demonstrates that Elkton's drinking water does not contain contaminants at levels that are harmful to the public. This report further outlines water quality with respect to specific contaminants present or potentially present in Elkton's drinking water, and includes technical information collected and reported to the Maryland Department of the Environment during 2012.

Definitions

This report contains the following technical terms and abbreviations that we feel should be defined in order to enhance the reader's understanding of the technical information presented in this report:

Action Level - the concentration of a contaminant, if exceeded, that triggers treatment or other requirements.

Maximum Contaminant Level - The maximum allowable level (MCL) of a contaminant in drinking water. MCLs are set as close to the maximum contaminant level goal (MCLG), q.v., as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs allow for a margin of safety.

Monitoring not required, but recommended (MNR) – unregulated contaminants not subject to MCL or MCLG.

Most probable number (MPN) – a value used to calculate coliform (bacteria) density.

Non-Detects (ND) - laboratory analysis indicated that a particular substance was not detected.

Nephelometric Turbidity Unit (NTU) – using a nephelometric meter, a specific unit of measurement for water clarity or turbidity, the lower the number indicating proportionately better clarity.

Parts per billion (ppb) *or micrograms per liter* – an amount indicating one part per billion parts; corresponding, e.g., to one minute in 2,000 years or one cent in $10,000,000.

Parts per million (ppm) *or milligrams per liter (mg/l)* – an amount indicating one part per one million parts; corresponding, e.g., to one minute in two years or one cent in $10,000.

Picocuries per liter (pCI/L) – a measure of radioactivity where one picocurie is one-trillionth of 37 billion disintegrations per second.

Treatment Technique (TT) – a water treatment process intended to reduce the level of contaminant(s) in drinking water.

DETECTED CONTAMINANTS NOT IN VIOLATION OF THE MAXIMUM CONTAMINANT LEVEL ELKTON WATER TREATMENT PLANT (PWSID 0070011)

Contaminant	Level Detected	Unit of Meas	MCLG	MCL	Likely Source of Contamination	Regulated / Unregulated
Nitrate	3.8	ppm	10	10	Fertilizer, septic tanks, erosion of natural deposits	Regulated
Chloroform	13.5	ppb	N/A	100	By-products of drinking water disinfection	Regulated
Barium	0.032	ppm	2	2	Discharge of drilling waste/ metal refineries; Erosion of natural deposits	Regulated
Bromodichloromethane	6.8	ppb	N/A	100	By-products of drinking water disinfection	Regulated
Sodium	20.3	ppm	MNR	MNR	Sodium Carbonate is a chemical added to the water to raise the pH	Unregulated
Total Trihalomethane (TTHM)	32.7	ppb	N/A	80	By-products of drinking water disinfection	Regulated
Total Organic Carbon	2.00	ppm	TT	N/A	By-products of drinking water disinfection	Regulated
Haloacetic Acids (HAA5)	30.3	ppb	N/A	80	By-products of drinking water disinfection	Regulated
Dalapon	60.2	ppb	200	200	Runoff from herbicide used on rights of way	Regulated
Copper	0.48 (90^{th} percentile)	ppm	1.3	TT Action Level =1.3	Corrosion of household plumbing systems; erosion of natural deposits	Regulated
Lead	0.00 (90^{th} percentile)	ppm	zero	TT Action Level =0.015	Corrosion of household plumbing systems; erosion of natural deposits	Regulated

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Severn Trent is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at ***http://www.epa.gov/safewater/lead****.*

DRINKING WATER TURBIDITY

Turbidity describes the relative clarity of water, ranging from perfectly clear and transparent to cloudy, hazy, or opaque. Turbidity in water is caused by suspended matter, such as clay, silt, finely divided organic and inorganic material, colored organic chemicals, algae and other microscopic organisms. Turbidity is measured by using a *nephelometric turbidity meter* (NTM), and measurements are expressed as *Nephelometric Turbidity Units (NTUs).* The treatment and filtration of water at the Elkton Water Treatment Plant reduces turbidity to very low levels, detectible only to special electronic measuring devices, such as the NTM. The following table indicates turbidity monitoring at the Elkton Water Treatment Plant during 2012:

Contaminant	*Units*	*MCLG*	*MCL*	*Level Found*	*Likely Source of Contamination*
Turbidity	**NTU**	**0**	**TT=1 NTU**	**0.12 NTU High 0.04 NTU Avg**	**Soil Runoff**
		TT= percentage of samples <0.5 NTU		**100 %**	

It is important to understand that the detection of these substances in the drinking water does not constitute a known threat to public health because they were found only at levels less than the MCL, and below the level that EPA currently feels may constitute a health threat. MCL's are set at very stringent levels and the Town's water has proved to be below those levels for the contaminants listed above. As you can see by the table, our system had *no violations*. We are confident that your drinking water meets or exceeds all Federal and State requirements. Although some contaminants have been detected in finished water, the EPA has determined that your water **IS SAFE** at these levels.

DETECTED CONTAMINANTS NOT IN VIOLATION OF THE MAXIMUM CONTAMINANT LEVEL (MCL) WELL NO. 1 (PWSID #0070011)

The Town did find some regulated contaminants present in the groundwater at Well No. 1 at levels below the maximum contaminant level (MCL), determined safe by the USEPA. These contaminants are shown below, along with the MCLG and MCL for each one detected:

Contaminant	Level Detected	Unit of Meas	MCLG	MCL	Likely Source of Contamination	Regulated/ Unregulated
Nitrate	3.5	ppm	10	10	Fertilizer, septic tanks, erosion of natural deposits	Regulated
Sodium	89.3	ppm	MNR	MNR	Sodium Carbonate is a chemical added to the water to raise the pH	Unregulated
Barium	.16	ppm	2	2	Discharge of drilling waste/ metal refineries; Erosion of natural deposits	Regulated
Chromium	.005	ppm	0.1	0.1	Discharge from steel and pulp mills; erosion of natural deposits	Regulated
Nickel	.023	ppm	MNR	MNR	Inadvertent formation of nickel carbonyl can occur in various industrial processes that use nickel catalysts, such as coal gasification, petroleum refining, and hydrogenation of fats and oils. Nickel oxide has been identified in residual fuel oil and in atmospheric emissions from nickel refineries. Trinickel disulfide is a major component in nickel refinery flue dust.	Unregulated

It is important to note that the detection of these substances in the drinking water does not constitute a known threat to public health because they were found only at levels less than the MCL, and below the level that the USEPA currently feels may constitute a health threat. MCL's are set at very stringent levels, and Elkton's water has proved to be below those levels for the contaminants listed above. As you can see by the table, our system had *no violations*. We are confident that your drinking water meets or exceeds all federal and state requirements.

DETECTED CONTAMINANTS NOT IN VIOLATION OF THE MAXIMUM CONTAMINANT LEVEL (MCL) WELL NO. 3 (PWSID 0070011)

The Town did find some regulated contaminants present in the groundwater from Well No. 3 at levels below the maximum contaminant level (MCL), determined safe by the USEPA. These contaminants are shown below, along with the MCLG and MCL for each one detected:

Contaminant	Level Detected	Unit of Meas	MCLG	MCL	Likely Source of Contamination	Regulated/ Unregulated
Nitrate	2.49	ppm	10	10	Fertilizer, Septic Tanks, erosion of natural deposits	Regulated
Sodium	102.2	ppm	MNR	MNR	Sodium Carbonate is a chemical added to the water to raise the pH	Unregulated
Chromium	.0036	ppm	0.1	0.1	Discharge from steel and pulp mills; erosion of natural deposits	Regulated
Barium	.083	ppm	2	2	Discharge of drilling waste/ metal refineries; Erosion of natural deposits	Regulated

It is important to note that the detection of these contaminants in drinking water does not necessarily constitute a known threat to public health, because the contaminants were found only at levels less than the MCL, and below the level that the USEPA currently determines may constitute a threat to human health. MCLs are set at very stringent levels, and testing of Elkton's drinking water has demonstrated results below those levels for contaminants listed above. Consequently, the Town's drinking water meets or exceeds Federal and State drinking water standards, and is safe to drink.

SUMMARY

All sources of public drinking water are subject to potential contamination by substances that are naturally occurring or manmade in origin. These substances may include microorganisms, organic and inorganic chemicals, and radioactive materials. Consequently, drinking water, including bottled water, may contain at least small amounts of some of these contaminants, the presence of which may not necessarily pose a threat to human health. More information about the potential human health effects by contaminants in public drinking water and information relating to the Safe Drinking Water Act can be obtained by contacting the U.S. Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791 or via the Internet at http://water.epa.gov .

For nitrates and other contaminants that were detected at levels lower than the allowable MCL, it is important to understand that the EPA has determined that drinking water is safe at these allowable levels. To experience the possible health effects described for many of the regulated constituents a person would have to drink two liters of water every day containing a constituent at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Although the Town of Elkton adheres to all Federal and State regulations relating to the treatment, distribution and testing of drinking water to ensure a safe and dependent supply, some people may be more vulnerable to contaminants than the general population. An immune compromised person may be adversely affected by one or more contaminants in drinking water, e.g., a person undergoing chemotherapy, an organ transplant recipient, a person with HIV / AIDS or other immune system disorder, the elderly, and some infants who may be at risk for infections. These people should seek advice about drinking water and potential contaminants that could affect their health from a qualified and knowledgeable health care provider. More information about the potential health effects by contaminants in public drinking water may be obtained by contacting the United States Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or on the Internet at http://water.epa.gov .

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo ó hable con alguien que lo entienda bien. (This report contains very important information about your drinking water. Translate it, or speak with someone who understands it).

If you have any technical questions regarding the *2012 Annual Drinking Water Quality Report*, please contact the Town of Elkton, Administration Office, Elkton Municipal Building, 100 Railroad Avenue, Elkton, Maryland 21921 Telephone: (410) 398-0970 Facsimile: (410) 392-6633 Email: administration@elkton.org

TTY users should contact the Administration Office through the Maryland Relay Service at (800) 735-2258.

"The Town of Elkton's water resources are critical to the continuing health, prosperity and growth of our community. Consequently we will continue to strive toward the goals of maintaining the highest quality of water and developing additional sources to meet future demands. We encourage our residents and our business community to conserve and respect our most valued natural resource."

Mayor Joseph Fisona

A copy of Artesian Water Company's Water Quality Report for 2012 is included with this report, since Elkton purchases approximately 16 % of its daily water distribution from Artesian.

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Elkton, Maryland 21921

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TOWN OF ELKTON
2012 Annual Drinking Water Quality Report
Town of Elkton, Cecil County, Maryland

Artesian Water Company Water Quality Report for 2012

Artesian Water Company • 664 Churchmans Road • Newark, Delaware 19702 PWSID# DE0000552 Spring 2013

Dear Valued Customer,

We are pleased to present our annual *Water Quality Report* for 2012. Each spring this report is published in accordance with the requirements of the United States Environmental Protection Agency (EPA) and the Delaware Division of Public Health (DPH). The Water Quality Report describes 2012 results from our monitoring and testing data and valuable information relating to the quality of our water supply.

Since 1905, Artesian has provided safe drinking water and excellent customer service to the people on the Delmarva Peninsula. We are proud to report that our water again fully complies with national and state drinking water standards.

Supplying safe drinking water requires regular maintenance and upgrades to our facilities. To that end, Artesian invested $20.5 million in 2012 for infrastructure improvements to continue and improve service for the nearly 300,000 people we serve across the Delmarva Peninsula. We maintain more than 1,150 miles of water mains and 189 wells to provide service to a territory of 280 square miles. And still, you pay *less than a penny per gallon* to receive high-quality tap water that provides public health protection, fire protection and support for the economy.

We encourage you to take the time to review the report and, if you have any questions about this report or the quality of your tap water, call us at (302) 453-6930 or (800) 332-5114. Our Customer Service Representatives, and our Water Quality Department headed by William K. Owens, are ready to assist you. This report is also available on our website at *www.artesianwater.com*.

As always, it is our pleasure to serve you.

ARTESIAN WATER COMPANY

WATER QUALITY REPORT

Information concerning public water system

DE0000552

EPA WaterSense PARTNER

www.epa.gov/watersense/

A Safe Water Source

The Artesian Water Company public water system is supplied with water from 50 wells located throughout northern New Castle County. These wells are in the Columbia, Potomac, Cockeysville Marble and Mount Laurel formations. Our ground water wells use the natural filtering capability of the aquifer to remove harmful bacteria and other substances from the water. These wells are located in confined aquifers that provide additional protection from surface-borne contaminants. Our treatment stations use the best available technology to ensure that we are providing water that meets or exceeds all Environmental Protection Agency (EPA) and State Division of Public Health water quality parameters. Regular testing also helps us ensure high quality.

In 2012, we purchased an average of 3.0 million gallons per day of surface water from the Chester Water Authority and an additional 0.05 million gallons per day from the City of Wilmington. The Chester water supply comes from the Susquehanna River basin, while the City of Wilmington's supply comes from the Brandywine River basin. You can view the water quality report for Chester Water Authority at *www.chesterwater.com/waterqualityrep/12_ccr/CCR2012.pdf* or the City of Wilmington's water quality report at *www.wilmingtonde.gov/government/waterreports*. This purchased water meets all State and Federal regulations, and is used to augment our supply.

The Division of Public Health, in conjunction with the Department of Natural Resources and Environmental Control, has conducted source water assessments for nearly all community water systems in the state of Delaware. The Source Water Assessment report can be found on the Delaware SWAPP website *www.delawaresourcewater.org/assessments* or contact Artesian's Water Quality Department at (302) 453-6900 to obtain a copy.

Artesian Water Company
Water Quality Report for 2012

PUBLIC WATER SYSTEM I.D. DE0000552

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

	Unit of Measure	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Highest Level Detected	Range of Level Detected	Violation?	Likely Source of Contamination
Inorganic Contaminants							
Arsenic	ppb	10	0	1.4	nd – 1.4	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium	ppm	2	2[7]	0.172	0.01 – 0.172	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Cadmium	ppb	5	5[7]	0.04	nd – 0.04	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteies.
Chromium	ppb	100	100[7]	19	nd – 19	No	Discharge from steel and pulp mills; Erosion of natural deposits.
Fluoride	ppm	2	2[7]	1.94	nd – 1.94		Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Mercury	ppb	2	28	0.124	nd – 0.124	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.
Nickel	ppb	100	100[7]	11	nd – 11	No	Erosion of natural deposits.
Nitrate[1]	ppm	10	10[7]	6.99	nd – 6.99	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium	ppb	50	50[7]	7	nd – 7	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
Thallium	ppb	2	0.5	0.12	nd – 0.12	No	Discharge from electronics or glass production; Leaching from ore-processing sites; Discharge from pharmaceutical factories.
Synthetic Organic Contaminants including pesticides and herbicides							
Atrazine	ppb	3	3	0.088	nd – 0.088	No	Runoff from herbicide used on row crops.
bis(2-chloroethyl) ether (BCEE)	ppt	96	96[7]	29	nd – 29	No	Discharge from industrial chemical factories.
Carbofuran	ppb	40	40[7]	40	nd – 40	No	Residue of banned termiticide.
Chlordane	ppb	2	0	1.01	nd – 1.01	No	Residual of banned termiticide.
cis-1,2-Dichlorlethene	ppb	100	100[7]	0.89	nd – 0.89	No	Discharge from industrial chemical factories.
Di(2-ethylhexyl)adipate	ppb	400	400[7]	0.055	nd – 0.055	No	Discharge from industrial chemical factories.
Di(2-ethylhexyl)phthalate	ppb	6	0	0.557	nd – 0.557	No	Discharge from rubber and chemical factories.
1,1- Dichloroethene	ppb	7	7[7]	0.14	nd – 0.14	No	Discharge from industrial chemical factories.
Heptachlor Epoxide	ppt	200	0	30	nd – 30	No	Breakdown of heptachlor.
Methyl-t-butyl Ether (MTBE)	ppb	10	0	1.64	nd – 1.64	No	Gasoline additive.
Oxanyl (Vydate)	ppb	200	200[7]	200	nd – 200	No	Runoff/leaching from insecticides used on apples, potatoes and tomatoes.
Tetrachloroethene	ppb	5	0	2.6	nd – 2.6	No	Leaching from PVC pipes. Discharge from factories and dry cleaners.
1,1,1- Trichloroethane	ppb	200	200[7]	0.11	nd – 0.11	No	Discharge from metal degreasing sites and other factories.
Trichloroethylene	ppb	5	0	0.37	nd – 0.37	No	Discharge from metal degreasing sites and other factories.
Toulene	ppb	1000	1000[7]	0.31	nd – 0.31	No	Discharge from petroleum factories.
Radiological Contaminants							
Gross Alpha Emitters	pCi/l	15	0	1.8[9]	1.8[9]	No	Erosion of natural deposits.
Radium (Combined 226 & 228)[4]	pCi/l	5	0	5	1 – 10.1[5]	No	Erosion of natural deposits.
Disinfection/Disinfection By-Products							
Chlorine (free and total)	ppm	4 (MRDL)	4 (MRDLG)[6]	2.62	nd – 2.62	No	Disinfectant used in drinking water industry.
Haloacetic Acids, total[4]	ppb	60		41.1	nd – 53.80[5]	No	By-product of drinking water chlorination.
Dibromoacetic Acid	ppb	n/r		1.73	nd – 1.73	n/a	
Dichloroacetic Acid	ppb	n/r		27.20	nd –27.20	n/a	
Trichloroacetic Acid	ppb	n/r		26.60	nd – 26.60	n/a	
Trihalomethanes, total[4]	ppb	80		48.4	nd – 72.40[5]	No	By-product of drinking water chlorination.
Bromodichloromethane	ppb	n/r		51.5	nd – 51.5	n/a	
Bromoform	ppb	n/r		8.3	nd – 8.3	n/a	
Chloroform	ppb	n/r		65.8	nd – 65.8	n/a	
Dibromochloromethane	ppb	n/r		1.74	nd – 1.74	n/a	

	Unit of Measure	Action Level (AL)	Ideal Goal (MCLG)	90th Percentile	No. of Sites Over AL	Violation?	Likely Source of Contamination
Lead & Copper[3]							
90th Percentile Lead	ppb	15	0	3[8]	1	No	Corrosion of household plumbing systems. Erosion of natural deposits.
90th Percentile Copper	ppm	1.3	1.3[7]	0.634[8]	0	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.

Artesian Water Company
Water Quality Report for 2012

PUBLIC WATER SYSTEM I.D. DE0000552

Unregulated Contaminants	Unit of Measure	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Highest Level Detected	Range of Level Detected	Violation?	Likely Source of Contamination
Acetone	ppb	n/r		29.4	nd – 29.4	n/a	
Alkalinity, total	ppm	n/r		280	25 – 280	n/a	
alpha-Chlordane	ppb	n/r		0.4	nd – 0.4	n/a	
Butylbenzylphthalate	ppb	n/r		0.04	nd – 0.04	n/a	
Carbon dioxide, free	ppm	n/r		22.45	nd – 22.45	n/a	
Conductivity	umhos	n/r		765	187 – 765	n/a	
Dieldrin	ppb	n/r		0.07	nd – 0.07	n/a	
Diethylphthalate	ppb	n/r		0.092	nd – 0.092	n/a	
Di-N-Butylphthalate	ppb	n/r		0.245	nd – 0.245	n/a	
1, 4 Dioxane	ppb	n/r		2.2	nd – 2.2	n/a	
gamma-Chlordane	ppb	n/r		0.025	nd – 0.025	n/a	
Hardness, Calcium	ppm	n/r		242	13 – 242	n/a	
Hardness, Total	ppm	n/r		371	58 – 371	n/a	
Phosphate, total	ppm	n/r		3.2	nd – 3.2	n/a	
Sodium	ppm	n/r		104	4 – 104	n/a	
1,2,3- Trichlorobenzene	ppb	n/r		0.24	nd – 0.24	n/a	
Trichlorofluoromethane	ppb	n/r		1	nd – 1	n/a	
Turbidity[2]	NTU	5[2]	1	4.8	nd – 4.8	n/a	

Secondary Contaminants	Unit of Measure	SMCL	Ideal Goal (MCLG)	Average Level Detected	Range of Level Detected	Violation?	Likely Source of Contamination
Aluminum	ppm	0.2		0.0016	nd – 0.0026	n/a	
Chloride	ppm	250		49.25	4.02 – 107	n/a	
Color, Apparent	Pt-Co Std	15		6.66	5 – 30	n/a	
Iron	ppm	0.3		0.058	nd – 0.8	n/a	Short-term fluctuations related to iron removal treatment.
Manganese	ppm	0.05		0.021	nd – 0.457	n/a	One time high manganese reading. Stations were shut down to allow wells to rest.
pH, Field	0 - 14 scale	6.5 – 8.5		7.11	6.1 – 9.36	n/a	Short-term fluctuations related to pH adjustments in the system.
Solids, total dissolved	ppm	500		206.2	67 – 409	n/a	
Sulfate	ppm	250		17.16	2.85 – 32.2	n/a	
Zinc	ppm	5		0.08	nd – 0.153	n/a	

	Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level	Total No. of E. Coli or Fecal Coliform Samples	Violation?	Likely Source of Contamination
Microbiological Contaminants Total Coliform	0	No more than 5% per month	1.5%		0	No	Naturally present in the environment.

NOTES

1. Nitrate [measured as Nitrogen] - Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.
2. This MCL applies only to surface water systems.
3. Under the Lead and Copper Rule, we sample for these contaminants once every 3 years.
4. Highest 4-quarter average of samples collected and used by the State Division of Public Health for compliance.
5. Range includes all samples tested for, whereas highest level detected is based upon the highest 4-quarter average.
6. The U.S. Environmental Protection Agency sets the MRDLG for chlorine residual at 4 parts per million (ppm). Artesian Water strives to meet a range between 0.5 ppm and 3 ppm.
7. Although EPA sets the "goal" at the same level as the maximum contaminant level for these contaminants, Artesian Water strives to maintain levels lower than the MCL.
8. Samples last collected in 2011 for compliance.
9. Samples last collected in 2009 for compliance.

E. coli - Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

VIOLATION Type	Violation Begin	Violation End	Violation Explanation
Monitoring of source water under the Ground Water Rule, Major	01/01/2012	01/31/2012	Failed to collect follow-up samples within 24 hours of learning of the total coliform positive sample. These needed to be tested for fecal indicators from all sources that were being used at the time the positive sample was collected. Subsequent samples were collected and none were positive for the presence of E. coli.

Definitions of Terms

90TH PERCENTILE — the 90th highest reading (out of a total of 100 samples), which is used to determine compliance with the Lead and Copper Rule.

ACTION LEVEL — the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MAXIMUM CONTAMINANT LEVEL (MCL) — the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG) — the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL) — the highest level of a disinfectant in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG) — the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NEPHELOMETRIC TURBIDITY UNIT (NTU) — a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

SECONDARY MAXIMUM CONTAMINANT LEVEL (SMCL) – Non-enforceable guideline which is not directly related to public health, commonly associated with cosmetic or aesthetics within the water.

NON-DETECTS (ND) — laboratory analysis indicates that the constituent is not present.

NOT REGULATED (N/R) — no MCL identified because these substances are unregulated.

PARTS PER MILLION (PPM) — 1 part per million corresponds to 1 minute in 2 years or a single penny in $10,000.

PARTS PER BILLION (PPB) — 1 part per billion corresponds to 1 minute in 2,000 years, or a single penny in $10,000,000.

PARTS PER TRILLION (PPT) — 1 part per trillion corresponds to 1 minute in 2,000,000 years, or a single penny in $10,000,000,000.

PICOCURIES PER LITER (PCI/L) — a measure of the radioactivity in water.

Expected Substances In Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

If You Have A Special Health Concern

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Lead In Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Artesian is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *www.epa.gov/safewater/lead*.

Radon, Cryptosporidium & Giardia

Radon is a radioactive gas that is found in nearly all soils. It typically moves up through the ground to the air and into homes through the foundation. Drinking water from a ground water source can also add radon to the home air. The EPA indicates that, compared to radon entering the home through soil, radon entering the home through water will in most cases be a small source of risk. The EPA and the State of Delaware have not yet set standards for monitoring radon in drinking water, although we do expect sampling to become mandatory in the near future. Artesian Water Company is keeping a close eye on the situation and will be sure to comply with any new regulations as required.

Cryptosporidium and Giardia parasites have been known to contaminate drinking water reservoirs of surface water treatment plants. Water purchased by Artesian from the Chester Water Authority and the City of Wilmington are surface water supplies. Both have tested for these parasites and have found no problems in their treated water product.

Monitoring Waivers

The Artesian Water Company public water system currently has a waiver for asbestos monitoring due to non-detectable results from 1995 sampling. The State of Delaware's Office of Drinking Water will be conducting new sampling to determine whether this waiver will be continued.

Artesian Water Service Facts

Population Served	**approximately 300,000**
Metered Customers	**81,200**
Annual Production	**7.4 billion gallons**
Miles of Main	**1,162**
Public Fire Protection Hydrants	**5,594**
Active Wells	**189**
Storage Capacity	**174 million gallons**
Water Service Territory	**280 square miles**
Average cost per day for residential water service	**$1.62**

If you have any questions about the contents of this report, please call Artesian at ***(302) 453-6930,*** *toll free at* ***1 (800) 332-5114*** *or email at* ***custserv@artesianwater.com.*** *Our Customer Service Representatives and Water Quality Department are ready to assist you. More information about Artesian is available at our website:* ***www.artesianwater.com.***

Landlords, apartment managers, businesses, schools, etc. should share this information with others who might not receive this information directly. Consider posting the information in a public place or advise others that the report is available by contacting Artesian by phone or online at ***www.artesianwater.com.***

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664 Churchmans Road
Newark, DE 19702

OVER 100 YEARS OF SUPERIOR SERVICE
ARTESIAN WATER COMPANY